Cisco IP Phone 6861 Multiplatform Phones Wireless LAN Deployment Guide



The Cisco IP Phone 6861 Multiplatform Phones are adaptable for scenarios that require the ability to unplug the wired network connection and remain connected. The Wireless LAN capability enables communications in a WLAN-deployed working place or home.

This guide provides information and guidance to help you deploy the phone in a wireless LAN environment.

Revision History

Date	Comments
08/03/19	Initial version
08/06/19	Updated based on review comments

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WLAN Capability Overview

The Cisco IP Phone 6861 Multiplatform Phones extend collaboration to wireless network with 802.11 implementation. You can use the Cisco Unified Communication applications on the phone with either wired or wireless network.

With an enhancement on QoS control, the implementation of 802.11 permits time-sensitive applications, such as voice, to operate efficiently over wireless LAN (WLAN) deployment. These extensions provide bandwidth allocation ahead of a service if the AP supports it too, which guarantees the efficiency and good experience of communication for traffic over the air.

Since WLAN uses unlicensed spectrum, it may experience interference from other devices using the unlicensed spectrum. The proliferation of devices in the 2.4 GHz spectrum, such as Bluetooth headsets, Microwave ovens, and cordless consumer phones, means that the 2.4 GHz spectrum may contain more congestion than other spectrums. The 5 GHz spectrum has far fewer devices operating in this spectrum and is the preferred spectrum to operate the phone in order to take advantage of the 802.11a/n data rates available.

Despite the optimizations that Cisco has implemented in Cisco IP Phone 6861 Multiplatform Phones, we can't guarantee uninterrupted communication in using the unlicensed spectrum, and there may be the possibility of voice gaps of up to several seconds during conversations. Adherence to these deployment guidelines will reduce the likelihood of these voice gaps being present, but there is always the possibility.

Through the use of unlicensed spectrum, and the inability to guarantee the delivery of messages to a WLAN device, the Cisco IP Phone 6861 Multiplatform Phone is not intended to be used as a medical device and should not be used to make clinical decisions.

Supported Frequencies and Channels

The following table lists the frequencies and channels that Cisco IP Phone 6861 Multiplatform Phones support.

Part Number	Description	Peak Antenna Gain	Frequency Ranges	Available Channels	Channel Set
CP-6861-3PW-CE-K9= CP-6861-3PW-NA-K9=	Cisco MPP	2.412-2.472GHz: 2.44 dBi	2.412 - 2.472 GHz	13	1-13
CP-6861-3PW-UK-K9=	Phone 6861	5.150-5.350GHz: 0.53 dBi	5.180 - 5.240 GHz	4	36,40,44,48
CP-6861-3PW-AU-K9=		5.470-5.725GHz: 0.7 dBi	5.260 - 5.320 GHz	4	52,56,60,64
			5.500 - 5.700 GHz	11	100-144
			5.745 - 5.825 GHz	5	149,153,157,161,165

Requirements

Before deploying your phone, ensure that the requirements for the site and WLAN network are met.

Site Requirements

Before deploying the phone into a production environment, the site WLAN network deployment must be properly configured to accommodate more devices. Typically, there is less interference in the 5 GHz band and more non-overlapping channels, so 5 GHz is the preferred band for operation and even more highly recommended when the phone is to be used in a mission-critical environment.

The wireless LAN must be validated to ensure it meets the requirements to deploy the phone.

<u>Signal</u>

The signal coverage should be no lower than -67 dBm to ensure that the phone always has adequate signal.

Channel Utilization

Channel Utilization levels should be kept under 40%.

The phone converts the 0-255 scale value to a percentage, so 105 would equate to around 40% on the phone.

<u>Noise</u>

Noise levels should not exceed -92 dBm, which allows for a Signal to Noise Ratio (SNR) of 25 dB where a -67 dBm signal should be maintained.

Ensure that the upstream signal from the phone meets the access point's SNR for the transmitted data rate.

Packet Loss / Delay

Per voice guidelines, packet loss should not exceed 1%. Otherwise, the voice quality can be degraded significantly.

Jitter should be kept at the minimal (< 100 ms).

Retries

802.11 retransmission should be less than 20%.

<u>Multipath</u>

Multipath should be kept to the minimal to create nulls and reduce signal levels.

Number of allowed devices

The total number of connected devices to a given AP is no more than 10.

Separate SSID

We recommend that you put the phone in a separate SSID to guarantee voice traffic on the phone. Sharing the same SSID with other devices may impact phone calls on the phone when the other devices are using heavy network traffic. For voice deployments, it is suggested to use 802.11a/n for voice and use 802.11b/g/n for data.

Wireless LAN

The Cisco IP Phone 6861 Multiplatform Phones are recommended to work with the following Wireless LAN solutions:

- Mainstream AP for home use
- Cisco Autonomous Access Points
- Minimum = 12.4(21a)JY
- Recommended = 12.4(25d)JA2, 15.2(4)JB6, 15.3(3)JD

Protocols

The supported wireless LAN protocols include the following:

- 802.11a, b, d, e, g, h, i, n
- Wi-Fi MultiMedia (WMM)
- Traffic Specification (TSPEC)
- Traffic Classification (TCLAS)

Regulatory

World Mode (802.11d) allows a client to be used in different regions, where the client can adapt to use the channels and transmit powers advertised by the access point in the local environment.

The phone operates best when the access point is 802.11d-enabled. The AP can determine the channels and transmit powers per the local region.

Enable World Mode (802.11d) for the corresponding country where the access point is located.

Some 5 GHz channels are also used by radar technology, which requires that the 802.11 client and access point to be 802.11h-compliant to utilize those radar frequencies (DFS channels). 802.11h requires 802.11d to be enabled.

The Cisco IP Phone 6861 Multiplatform Phone will passively scan DFS channels first before engaging in active scans of those channels.

If 802.11d is not enabled, then the phone can attempt to connect to the access point using reduced transmit power.

Below are the countries and their 802.11d codes that the phone supports.

Argentina (AR)	Iceland (IS)	Philippines (PH)
Australia (AU)	India (IN)	Poland (PL)
Austria (AT)	Ireland (IE)	Portugal (PT)
Bahrain (BH)	Israel (IL)	Puerto Rico (PR)
Belgium (BE)	Italy (IT)	Romania (RO)
Brazil (BR)	Japan (JP)	Russian Federation (RU)
Bulgaria (BG)	Korea (KR)	Saudi Arabia (SA)
Canada (CA)	Latvia (LV)	Serbia (RS)
Chile (CL)	Liechtenstein (LI)	Singapore (SG)
Colombia (CO)	Lithuania (LT)	Slovakia (SK)
Costa Rica (CR)	Luxembourg (LU)	Slovenia (SI)
Croatia (HR)	Macau (MO)	South Africa (ZA)
Cyprus (CY)	Macedonia (MK)	Spain (ES)
Czech Republic (CZ)	Malaysia (MY)	Sweden (SE)
Denmark (DK)	Malta (MT)	Switzerland (CH)
Dominican Republic (DO)	Mexico (MX)	Taiwan (TW)
Ecuador (EC)	Monaco (MC)	Thailand (TH)
Egypt (EG)	Montenegro (ME)	Turkey (TR)
Estonia (EE)	Netherlands (NL)	Ukraine (UA)
Finland (FI)	New Zealand (NZ)	United Arab Emirates (AE)
France (FR)	Nigeria (NG)	United Kingdom (GB)
Germany (DE)	Norway (NO)	United States (US)
Gibraltar (GI)	Oman (OM)	Uruguay (UY)
Greece (GR)	Panama (PA)	Venezuela (VE)
Hong Kong (HK)	Paraguay (PY)	Vietnam (VN)
Hungary (HU)	Peru (PE)	

Security

When deploying a wireless LAN, security is essential. The phone supports the following wireless security features.

- WLAN Authentication
 - WPA2-PSK (Pre-Shared key + AES encryption)
 - WPA-PSK (Pre-Shared key + TKIP encryption)
 - WPA2 (802.1x authentication + AES or TKIP encryption)

- WPA (802.1x authentication + TKIP or AES encryption)
- EAP-FAST (Extensible Authentication Protocol Flexible Authentication via Secure Tunneling)¹
- EAP-TLS (Extensible Authentication Protocol Transport Layer Security))¹
- PEAP-GTC (Protected Extensible Authentication Protocol Generic Token Card))¹
- PEAP-MSCHAPv2 (Protected Extensible Authentication Protocol Microsoft Challenge Handshake Authentication Protocol version 2))¹
- None
- WLAN Encryption
 - AES (Advanced Encryption Standard)
 - TKIP / MIC (Temporal Key Integrity Protocol / Message Integrity Check)
 - WEP (Wired Equivalent Protocol) 40/64 and 104/128 bit

Note: An external authentication system is required.

Configure Wireless LAN

Configure Mainstream Home-Based AP

When configuring a mainstream home-based access point, ensure that:

1. You enable internet access as below picture shows. The internet connection could be set up via wideband user account on DSL or fiber link to external network.

Internet VPN Dyna	mic DNS Routing DNS Hosts	Connect Back
Connection status		
Connection status:	Disconnected	
② Downstream:	Not Available	
⑦ Upstream:	Not Available	
Connection information		
Connection time:	0 Days, 0 Hours 0 Mins 0 Secs	
⑦ Data usage:	0 MB Uploaded / 0 MB Downloaded	
Broadband username:	green-light@service.btclick.com	Edit
Password:	*****	

2. You configure the local SSID and the secure mode for home/office usage as following picture shows.

	2.4 GHz and 5 (GHz
? Wireless:	ON	
⑦ Channels:	2.4GHz - Smart (Channel 1) 5GHz - Smart (Channel 48)	Rescan
② Network name:	BTBHub6-3GZH	
(?) WPS:	ON	Start WPS
② Security type:	WPA2 (Recommended)	
② Security password:	vtyYgYwTGab7	
Password strength:		
? Wireless mode:	Mode 1	

Cisco Autonomous Access Points

When configuring Cisco Autonomous Access Points, use the following guidelines:

- Configure the Data Rates as necessary
- Configure Quality of Service (QoS)
- Set the WMM Policy to Required
- Ensure Aironet Extensions is Enabled
- Disable Public Secure Packet Forwarding (PSPF)
- Set IGMP Snooping to Enabled

802.11 Network Settings

We recommend that you have the phone operate on the 5 GHz band only due to that there are many channels available on this band and not as many interferers as the 2.4 GHz band has.

To use the 5 GHz band, ensure that the 802.11a/n network status is Ena
--

cisco	HOME <u>N</u> ETWORK	ASSOCIATION	WIRELESS SECURITY	Sa <u>v</u> e (<u>S</u> ERVICES <u>M</u> ANAGEMENT	Configuration <u>P</u> ing Logout <u>R</u> efres <u>S</u> OFTWARE <u>E</u> VENT LOG
NETWORK	Hostname ap-1			ap-1	uptime is 1 day, 4 hours, 51 minutes
NETWORK MAP Summary	Network Interfac	ces: Summary			
Adjacent Nodes	System Settings				
- NETWORK INTERFACE	IP Address (Stati	c)	10.9.0	9	
Summary	IP Subnet Mask		255.255.255	0	
IP Address	Default Gateway		10.9.0	2	
Radio0-802.11N 2.4GHz	MAC Address		18e7.281b.3f5	4	
Radio1-802.11AC 5GHz	Interface Status	Gig	abitEthernet	Radio0-802.11N ^{2.4GHz}	Radio1-802.11AC5GHz
	Software Status		Enabled	Disabled	Enabled î
	Hardware Status		Up1	Down	Up î
	Interface Resets			5	0 8

We recommend that you set 12 Mbps as the mandatory (basic) rate and 18 Mbps or higher as the supported (optional) rates. However, some environments may require 6 Mbps to be enabled as the mandatory (basic) rate.

When using the 5 GHz band, up to 12 channels only is recommended to avoid any potential delay of access point discovery due to having to scan many channels.

For Cisco Autonomous Access Points, select Dynamic Frequency Selection (DFS) to use auto channel selection.

When DFS is enabled, enable at least one band (bands 1-4).

You can select Band 1 only for the access point to use a UNII-1 channel (channel 36, 40, 44, or 48).

Individual access points can be configured to override the global settings to use dynamic channel and transmit power assignment for either 5 GHz or 2.4 GHz depending on the frequency band to be used.

Other access points can be enabled for Auto RF and workaround the access points that are statically configured.

This may be necessary if there is an intermittent interference present in an area.

The 5 GHz channel width can be configured for 20 MHz or 40 MHz if using Cisco 802.11n Access Points and 20 MHz, 40 MHz, or 80 MHz if using Cisco 802.11ac Access Points.

It is recommended to use the same channel width for all access points.

Ensure **Client Power** is configured properly. Do not use the default setting of **Max** power for client power on Cisco Autonomous Access Points because that will not advertise DTPC to the client.

Enable Dot11d for World Mode and configure the proper Country Code.

Ensure Aironet Extensions is enabled.

Set the Beacon Period to 100 ms and DTIM to 2.



MCS Rates: 0 1 2	3 4 5	5 6 7 8 9 1	0 11 12 13	14 15 16 17 1	8 19 20	21 22 23
Enable 🔿 🧿 🕥	000			00000		000
Disable 🗿 🔿 🔿						
Transmitter Power (dBm):		015 012 09 0	6 🔾 3 💽 Max			Power Translation Ta
Client Power (dBm):		OLocal ○15 ○12	09 06 03	3 O Max		(mwwdbin)
DefaultRadio Channel:		Channel 36 - 5180 MH	łz	Channel 36 5180	MHz	
Dynamic Frequency Selection	n Bands:	Band 1 - 5.150 to 5.250 Band 2 - 5.250 to 5.35 Band 3 - 5.470 to 5.72 Band 4 - 5.725 to 5.82) GHz 0 GHz 5 GHz 5 GHz			
Channel Width:		Below 40 MHz 📀 2	0 MHz			
World Mode Multi-Domain Operation:		O Disable		C Legacy		 Dot11d
Country Code:		🛛 🔁 🛛 Indoor 【	Outdoor			
Radio Preamble		Short		OLong		
Antenna:		Oa-antenna	ab-antenna	Oabc-antenna	o abco	l-antenna
Internal Antenna Configuration	on:	Enable		O Disable		
		Antenna Gain(dBi):	0	(-128 - 128)		
Gratuitous Probe Response(GPR):	C Enable		O Disable		
		Period(Kusec): DIS	SABLED (10)-255)		
		Transmission Spee	d: none	0		
Traffic Stream Metrics:		O Enable		 Disable 		
Aironet Extensions:		Enable		O Disable		
Ethernet Encapsulation Trans	sform:	RFC1042		O 802.1H		
Reliable Multicast to WGB:		O Disable		 Enable 		
Public Secure Packet Forwar	ding:	PSPF must be set per	VLAN. See VLA	N page		
Beacon Privacy Guest-Mode:		C Enable		Oisable		
Beacon Period:	100	(20-4000 Kusec)	Data Bea	con Rate (DTIM):	2	(1-100)
Max. Data Retries:	64	(1-128)	RTS Max	Retries:	64	(1-128)
Fragmentation Threshold:	2346	(256-2346)	RTS Thre	shold:	2347	(0-2347)
Root Parent Timeout:		o	(0-65535 s	sec)		
Root Parent MAC 1 (optional)):		(нннн.н	нн.нннн)		
Root Parent MAC 2 (optional)	:		(нннн.н	нн.нннн)		
Root Parent MAC 3 (optional)):		(HHHH.H	нн.нннн)		
Root Parent MAC 4 (optional)):		(НННН.НІ	нн.нннн)		

If you want to use the 2.4 GHz band, ensure that the 802.11b/g/n network status and 802.11g is enabled.

Recommended to set 12 Mbps as the mandatory (basic) rate and 18 Mbps or higher as supported (optional) rates assuming that there will not be any 802.11b-only clients connecting to the wireless LAN. However, some environments may require 6 Mbps to be enabled as the mandatory (basic) rate.

If 802.11b clients exist, then 11 Mbps should be set as the mandatory (basic) rate and 12 Mbps or higher as the supported (optional) rate.

WLAN Settings

We recommend that you set a separate SSID for the phone to connect.

However, if there is an existing SSID configured to support voice-capable Cisco Wireless LAN endpoints already, then that WLAN can be utilized instead.

The SSID to be used by the phone can be configured to only apply to a certain 802.11 radio type (e.g. 802.11a only).

Enable **WPA2** key management.

ecurity Admin Access Encryption Manager	Hostname ap-1	da.		
Admin Access Encryption Manager				ap-1 uptime is 1 day, 4 hours, 33 m
Encryption Manager				
CCTD Manager	Security: Global SSID Manager	_	_	
SSID manager	SSID Properties			
Dot11u Manager	Current SSID List			
Server Manager	< NEW >	SSID:		voice
AP Authentication	data voice	VLAN:		3 Define VLANs
Intrusion Detection				Backup 1:
ocal RADIUS Server				Backup 2:
Advance Security				Backup 3:
		Band-S	elect:	Band Select
		Univers	al Admin Mode:	Universal Admin Mode
		Interfac	e:	Radio0-802.11N ^{2.4GHz}
				Radio1-802.11AC ^{5GHz}
	 Open Authentication: Web Authentication Shared Authentication: Network EAP: 	with EAP Web Pass < NO ADDITION> < NO ADDITION >	0	
	Server Priorities:			
	EAP Authentication Servers		MAC Authe	ntication Servers
	Use Defaults Define Defaults	ults	O Use Det	faults Define Defaults
	Customize		Custom	ize
	Priority 1: < NONE >		Priority	1: < NONE > 3
	Priority 2: < NONE >		Priority	2: < NONE > 0
	Priority 3: < NONE > C		Priority	3: < NONE > 0
	Client Authenticated Key Management			
	Key Management:	Mandatory 😂		Enable WPA WPAv2 dot11r

	shareu Key.			ASCII Hexadecimal
11w Confi	iguration:	Disable 📀		
11w Asso	ciation-comeback:	1000	(1000-20000)	
11w Saqu	ery-retry:	100	(100-500)	
IDS Client MFP				
🕑 Enabl	le Clien <mark>t MFP</mark> on this S	SID: Optional	0	
AP Authenticatio	on			
Credentials:		< NONE >	0	efine Credentials
Authenticati	on Methods Profile:	< NONE >	<u>ت</u>	efine Authentication Methods Profiles
Accounting Setti	ings			
🗌 Enabl	le Accounting		Accounting	Server Priorities:
			O Use De	faults Define Defaults
			Custom	ize
			Priority	1: < NONE > 🗘
			Priority 2:	< NONE > 📀
			Priority 3:	< NONE > 😒
			Phoney 5.	
ate Limit Paramete	ers		Phoney 5.	
ate Limit Paramete Limit TCP:	ers		ribity 5.	
ate Limit Paramete Limit TCP:	ers Rate:	Burst-Size:	(0-5000	100)
ate Limit Paramete Limit TCP: Input: O Output:	ers Rate: Rate:	Burst-Size: Burst-Size:	(0-5000 (0-5000	100)
ate Limit Paramete Limit TCP: Input: Output: Limit UDP:	ers Rate: Rate:	Burst-Size: Burst-Size:	(0-5000 (0-5000	000)
ate Limit Paramete .imit TCP: Input: Output: .imit UDP: Input:	ers Rate: Rate: Rate:	Burst-Size: Burst-Size: Burst-Size:	(0-5000 (0-5000 (0-5000	100) 100) 100)
ate Limit Paramete Limit TCP: Input: Output: Limit UDP: Input: Output:	Rate: Rate: Rate: Rate: Rate:	Burst-Size: Burst-Size: Burst-Size: Burst-Size:	(0-5000 (0-5000 (0-5000 (0-5000	100) 100) 100)
ate Limit Paramete Limit TCP: Input: Output: Limit UDP: Input: Output: eneral Settings	Rate: Rate: Rate: Rate:	Burst-Size: Burst-Size: Burst-Size: Burst-Size:	(0-5000 (0-5000 (0-5000 (0-5000	100) 100) 100)
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Limit TCP: Input: Output: Limit UDP: Input: Output: Coutput:	ers Rate: Rate: Rate: Rate: Rate: Rate: Rate: Rate: Capabilites Advertise Wir	Burst-Size: Burst-Size: Burst-Size: Burst-Size: of this SSID eless Provisionin	(0-5000 (0-5000 (0-5000 (0-5000	000) 000) 000) 000) S) Support
ate Limit Paramete Limit TCP: Input: Output: Limit UDP: Input: Output: eneral Settings	ers Rate: Rate: Rate: Rate: Rate: Rate: Rate: Advertise Wir Advertise this	Burst-Size: Burst-Size: Burst-Size: Burst-Size: of this SSID eless Provisionin SSID as a Secor	(0-5000 (0-5000 (0-5000 (0-5000 (0-5000 (0-5000 (0-5000 (0-5000) (0-5000)	000) 000) 000) S) Support SSID
Limit TCP: Input: Output: Limit UDP: Input: Output: Output: Limeral Settings Advertise	Rate: Rate: Rate: Rate: Rate: Rate: Advertise Wir Advertise Wir Advertise SS	Burst-Size: Burst-Size: Burst-Size: Burst-Size: of this SSID eless Provisionin SSID as a Secon	(0-5000 (0-5000 (0-5000 (0-5000 (0-5000 g Services (WP	000) 000) 000) S) Support SSID

Association Limit (optional): (1-255)	
EAP Client (option	al):	
	Username: Password:	
Multiple BSSID Beacon S	iettings	
Multiple BSSID Be	acon	
	Set SSID as Guest Mode	
	Set DataBeacon Rate (DTIM): DISABLED (1-100)	
Guest Mode/Infrastructu	re SSID Settings	Арр
Guest Mode/Infrastructu Radio0-802.11N ^{2.4GHz} : Set Beacon Mode: Set Infrastructure SSID: Radio1-802.11AC ^{5GHz} :	Single BSSID Set Single Guest Mode SSID: < NONE > Multiple BSSID < NONE > Force Infrastructure Devices to associate only to this SSID	
Guest Mode/Infrastructu Radio0-802.11N ^{2.4GHz} : Set Beacon Mode: Set Infrastructure SSID: Radio1-802.11AC ^{5GHz} : Set Beacon Mode: Set Infrastructure SSID:	Single BSSID Set Single Guest Mode SSID: << NONE > <	Appi

Segment wireless voice and data into separate VLANs.

Ensure that Public Secure Packet Forwarding (PSPF) is not enabled for the voice VLAN as this will prevent clients from direct communication when associated to the same access point. If PSPF is enabled, then the result will be no audio.

cisco	HOME NETWORK	ASSOCIATION WIRELESS	SECURITY	SERVICES	Sa <u>v</u> e MANAGEMENT	Configuration SOFTWARE	Ping Logout Refr			
arvices	Hostname ap-1				a	p-1 uptime is 1 o	lay, 4 hours, 48 minute			
felnet/SSH										
ot standby	Services: VLAN									
DP	Global VLAN Prop	erties								
NS	Current Native V	LAN: VLAN 10								
ters	Territoria e a series de la composición									
ПТР	Assigned VLANs									
os	Current VLAN Lis	t Create	VLAN		Define SSID	IS				
ream	< NEW >	1								
IMP	VLAN 2 VLAN 3	VI.			3	(1_409	4)			
TP	VLAN 10		AN ID.		5	(1.400	.,			
AN		VL	AN Name (opti-	onal):						
IP Caching		Delete	Native VLA	N						
and Select		Enable Public Secure Packet Forwarding								
uto Config			Radio0-803	11N2.4GHz						
		Radio1-802.11AC ^{5GHz}								
			Manageme	nt VLAN (If	non-native)					
							Apply Cancel			
	VLAN Information									
	View Information	or: VLAN 2								
		GigabitEthernet Packets	Radio0-I	302.11N ^{2.4GH2}	Packets	Radio1-802.1	1AC ^{5GHz} Packets			
	Received	65884					6588			
		10.550								

Ensure **AES** is selected for encryption type.

սիսիս cisco	HOME NETWORK ASSOCIATION	WIRELESS	ECURITY SERV	Save ICES <u>M</u> ANAGEMENT	Configuration Ping Logout Refre		
Security	Hostname ap-1			ap-	1 uptime is 1 day, 4 hours, 32 minutes		
Admin Access	Security: Encryption Manager						
SSID Manager	Set Encryption Mode and Keys	for VLAN:		3 ᅌ	Define VLANs		
Dotiiu Manager	Encryption Modes						
AP Authentication	◯ None						
Local RADIUS Server	WEP Encryption Optional	0					
Advance Security	Cisco Con	pliant TKIP Featur	es: 🗌 Enable Me	ssage Integrity Check (N	AIC)		
	O Cipher AES CCMP		Enable Pe	r Packet Keying (PPK)			
	Encryption Keys						
		Transmit Key	Enc	ryption Key (Hexadecir	nal) Key Size		
	Encryption Key 1:	0			128 bit 📀		
	Encryption Key 2:	0			128 bit 📀		
	Encryption Key 3:	0			128 bit 📀		
	Encryption Key 4:	0			128 bit 😌		
	Global Properties						
	Broadcast Key Rotation Interval	: O Dis	able Rotation				
		🔿 Ena	able Rotation with I	nterval: DISABLED (10	-10000000 sec)		
	WPA Group Key Update: Enable Group Key Update On Membership Termination						
		🗆 Ena	ble Group Key Up	late On Member's Capal	bility Change		
					Appry Cancer		

Configure the RADIUS servers to be used for authentication and accounting.

. diada			S	a <u>v</u> e Configuration <u>P</u> ing Logout <u>R</u> efresh					
cisco	HOME NETWORK ASSOCIAT	TION WIRELESS SECURITY	SERVICES MANAGEME	NT <u>S</u> OFTWARE <u>E</u> VENT LOG					
Security									
Admin Accord	Hostname ap-1			ap-1 uptime is 1 day, 4 hours, 42 minutes					
Encryption Manager	Security: Server Manager								
SSID Manager	Backup RADIUS Server								
Dot11u Manager Server Manager	IP Version:								
	Backup RADIUS Server Nam	e:							
AP Authentication	Backup RADIUS Server:		(Hostname or IP Add	dress)					
Local RADIUS Server	Shared Secret:								
Advance Security				Apply Delete Cancel					
	Ourseaster Ourseaster								
	Corporate Servers								
	Current Server List								
	RADIOS	IP Version							
	< NEW >	Server Name:	10.0.0.20						
	10.0.0.20	Server:	10.0.0.20	(Hostname or IP Address)					
		Shared Secret							
	22	Shared Secret.							
	Delete	Authentication Port (optional):	1812 (0-65535)						
		Accounting Port (optional):	1813 (0-65535)						
				Apply Cancel					
	Default Server Priorities								
	EAP Authentication	MAC Authentica	ition	Accounting					
	Priority 1: 10.0.0.20	Priority 1: < NO	NE > O	Priority 1: 10.0.0.20					
	Priority 2: < NONE > O	Priority 2: < NO	NE > C	Priority 2: < NONE > O					
	Priority 3: < NONE > O	Phonty 3: < NO	NE > O	Priority 3: < NONE >					
	Admin Authentication (RADII	JS) Admin Authentic	cation (TACACS+)						
	Priority 1: < NONE >	Priority 1: < NO	NE>						
	Priority 2: < NONE > 😒	Priority 2: < NO	NE > ᅌ						
	Priority 3: < NONE > 😋	Priority 3: < NO	NE > 😳						
			0.000						
				Apply Cancel					

Call Admission Control (CAC)

Load-based CAC that supports multiple streams is not present on the Cisco Autonomous Access Points therefore it is not recommended to enable CAC on Cisco Autonomous Access points.

The Cisco Autonomous Access Point only allows for one stream and the stream size is not customizable, therefore SRTP and barge do not work if CAC is enabled.

If Admission Control for Voice or for Video is enabled on the Cisco Autonomous Access Point, the admission must be unblocked on the SSID as well. In recent releases, the admission is unblocked by default.

```
dot11 ssid voice
vlan 3
authentication open eap eap_methods
authentication network-eap eap_methods
authentication key-management wpa version 2 dot11r
admit-traffic
```

	QoS POLICIES	AC	ADIO0-802.11N ^{2.4GHZ} CESS CATEGORIES	RADIO1-802	11AC ^{5GHZ} EGORIES	ADVANCE	D	
SSH Hostna	ame ap-1			_	ap	-1 uptime is 1	day, 4 hour	rs, 47 n
ndby								
Servi	ices: QoS Policie	s - Acces	s Category					
Acce	ss Category Defi	nition						
	Access Catago	PV .	Background	Bost Ef	fort	/ideo	Ve	alco
	Access Outego	.,	(CoS 1-2)	(CoS 0	,3) (Co	oS 4-5)	(Co:	5 6-7)
Min	Contention	AP	4	4	3	1	2	
Wind	dow	Client						-
(2.4)	r, x can be 0-10)	Client	4	4	3		2	-
Max	Contention	AP	10	6	4		3	
ching (2×-1	1; x can be 0-10)	Client	10	10	4		3	
elect		AP	7	2	1	1	1	
Fixed Slot Time	<u>19</u> 24							
(0.2	5)	Client	7	3	2		2	
Tran	smit Opportunity	AP	0	0	3008		1504	
(0-6	5535 µS)	Client	0	0	3008		1504	
				Optimized Voice	WFA Default		Apply	Car
Admi	ission Control for /ideo(CoS 4-5)	r Video ar	nd Voice					
		_ Admis	sion Control					
v	oice(CoS 6-7)							
		🛛 Admis	sion Control					
		Max Ch	annel Capacity (%):	75				

QoS Policies

Configure the following QoS policy on the Cisco Autonomous Access Point to enable DSCP to CoS (WMM UP) mapping.

This allows packets to be placed into the proper queue as long as those packets are marked correctly when received at the access point level.

es	QoS POLICIES	ACCESS CATEGORIES	ACCESS CATEGORIES	ADVANCED
et/SSH	Hostname ap-1		ap-1	uptime is 1 day, 4 hours, 44 m
standby	The second second second second			
	Services: QoS Policies	f		
rs	Create/Edit Policies			
•	Create/Edit Policy:	Voice 📀		
im	Policy Name:	Voice		
P				
•	Classifications:	DSCP - COS Controlled Load (4)		
l Cashing		DSCP - COS Video < 100ms Latency (DSCP - COS Voice < 10ms Latency (6)	5))	
Select				
Config		Delete Classification		
inines.				
	Match Classification	ns:	Apply Class of	Service
	IP Precedence:	Routine (0)	Best Effort (0)	Add
	IP DSCP:	Best Effort	Best Effort (0)	Add
		(0-63	3)	
	IB Protocol 110	i	Rest Effort (0)	Add
	Filter	No Filters defined Define Filters	best Enor(b)	
	Default Classificat	ion for Packets on the VI AN:	Best Effort (0)	bbA
	Pate Limiting:	ion for Packets on the VLAN.	Best Enort (0)	>
	Rate Limiting.	(8000 20000000)	Puret Pate (Puter)	(1000 51200000)
	Bits per Sec		Sursi Kale (Dyles).	(1000-012000000)
	Conform Action:		Exceed Action:	A
				Apply Delete Cano
	Apply Policies to Interfa	ace/ VLANs		
	VLAN 2	Radio0-802.11N ^{2.4GHz}	Radio1-802.11AC ^{5GHz}	GigabitEthernet0
	Incoming		Data	Data
	Outgoing		Data ᅌ	Data ᅌ
	VI AN 2	D. H. & COR 141124GHz		CigobitEthorpot0
		Radio0-802.11N ^{2.461/2}	Radio1-802.11AC	Voice
	Outgoing			
	Cargoing			
	VLAN 10	Radio0-802 11N ^{2.4GHz}	Radio1-802 11AC ^{5GHz}	GigabitEthernet0
	Incoming		< NONE > 0	< NONE > 🗘
	Outgoing		< NONE > 🗘	< NONE > 🗘

To enable QBSS, select **Enable** and check **Dot11e**.

If **Dot11e** is checked, then both CCA versions (802.11e and Cisco version 2) will be enabled.

Ensure **IGMP Snooping** is enabled.

Ensure Wi-Fi MultiMedia (WMM) is enabled.

CI VIGGO	QoS POLICIES
Telnet/SSH	Hostname ap-1 ap-1 uptime is 1 day, 4 hours, 47 min
Hot standby	
DP	Services: QoS Policies - Advanced
ONS	IP Phone
Filters	
ITTP	QOS Element for Wireless Phones : O Enable O Dottile
QOS	O Disable
Stream	IGMP Snooping
SNMP	
INTP	Snooping Helper: 3 Enable O Disable
VLAN	
ARP Caching	NORD Delate Manifest
Band Select	
Auto Config	Map Ethernet Packets with CoS 5 to CoS 6: O Yes O No
	WIEL MultiMedia (WMM)
	Enable on Radio Interfaces:
	Radio0-802.11N ^{2.4GHz}
	☑ Radio1-802.11AC ^{5GHz}

If the **Stream** feature is enabled either directly or via selecting **Optimized Voice** for the radio access category in the QoS configuration section, then use the default settings, where 5.5, 6, 11, 12, and 24 Mbps are enabled as nominal rates for 802.11b/g, 6, 12, and 24 Mbps are enabled for 802.11a, and 6.5, 13, and 26 Mbps are enabled for 802.11n.

If the **Stream** feature is enabled, ensure that only voice packets are being put into the voice queue. Signaling packets (SIP) should be put into a separate queue. This can be ensured by setting up a QoS policy mapping the DSCP to the correct queue.

uluili. cisco	<u>H</u> ome <u>N</u> etwork <u>A</u> ssociat	ION W <u>I</u> RELE	ESS <u>s</u> ecurity	<u>S</u> ERVICES	Sa <u>v</u> e <u>M</u> ANAGEMENT	Configuration	Ping Logout EVENT LOG	<u>R</u> efresh
Services	RADIO0-802.11N ^{2.4GHZ}	RADIO1-802	.11AC ^{5GHZ}					
Telnet/SSH	Hostname ap-1				ar	o-1 uptime is 1 o	iay, 4 hours, 48 n	ninutes
Hot standby								
CDP	Services: Stream							
DNS	Packet Handling per User P	riority:						
Filters	User Priority	Packet Ha	andling 1	Max Retries for Pa	acket Discard			
нттр	CoS 0 (Best Effort)	Reliable		NO DISCARD	(0-128)			
QOS	CoS 1 (Background)	Deliable			(0.128)			
Stream	Coo (Buolgiound)	Reliable		NU DISCARD	(0-128)			
SNMP	CoS 2 (Spare)	Reliable	0	NO DISCARD	(0-128)			
SNTP	CoS 3 (Excellent)	Reliable	0	NO DISCARD	(0-128)			
VLAN	CoS 4 (Controlled Load)	Reliable		NO DISCARD	(0-128)			
ARP Caching	0-05 054-0	Cristians		ine siderine				
Band Select	CoS 5 (Video)	Reliable		NO DISCARD	(0-128)			
Auto Config	CoS 6 (Voice)	Reliable	0	NO DISCARD	(0-128)			
	CoS 7 (Network Control)	Reliable		NO DISCARD	(0-128)			
	Low Latency Packet Rates:							
	6.0Mb/sec :	O Nominal	O Non-Nominal	 Disable 				
	9.0Mb/sec :	Nominal	O Non-Nominal	O Disable				
	12.0Mb/sec :	Nominal	Non-Nominal	Disable				
	18.0Mb/sec :	Nominal	Non-Nominal	O Disable				
	24.0Mb/sec :	Nominal	Non-Nominal	 Disable 				
	36.0Mb/sec :	Nominal	O Non-Nominal	O Disable				
	48 OMb/sec :			Disable				
	54 OM/D/360 .	ONOminal						
	04.UMD/SEC :	O Nominal	O Non-Nominal	Oisable				
						(Apply Can	icel

Advanced Settings

TKIP Countermeasure Holdoff Time

TKIP countermeasure mode can occur if the access point receives two Message Integrity Check (MIC) errors within 60 seconds. When this occurs, the access point will de-authenticate all TKIP clients associated to that 802.11 radio and hold off any clients for the countermeasure holdoff time (default = 60 seconds).

To change the TKIP countermeasure holdoff time on the Cisco Autonomous Access Point, telnet or SSH to the access point and enter the following command specifying the number of seconds and WLAN ID.

Interface dot11radio X countermeasure tkip hold-time <nseconds>

Configure Wireless Connection on Your Phone

You can connect your phone to a wireless network through WLAN profiles or WPS. WLAN profiles can be configured on the phone web page, on the phone screen, or in the configuration file by remote provisioning.

Wireless LAN Profiles (Web Page)

Be sure that your phone has got a valid IP address either by wired or wireless connection, and you have the administrator access to your phone.

2. Access the phone administrator web page by visiting one of the following URL and enter the administrator password when prompted.

http://<phone_IP>/admin/advanced, or https://<phone_IP>/admin/advanced

• • • • < >	dide http://10.74.80.10/ac	dmin/advanced			Ċ		
con conf-no-opl flame-chart Dasl	board 10.89.67.151	owner:zhijin	headset.c	Hub help an	All Hands	My Reviews	Cisco Hoste
CISCO CP-6861-3PC	Call Control	ation U	ltility				User Login
Info Voice Call History Personal Directory							
Status Debug Info Download Status Network Statis	cs						
System Information							
Host Name: S	EP002F5C6121C2				Domain:	cisco.com	
Primary NTP Server:				Sei	condary NTP Server:		
Active Interface: V	ireless				Wireless MAC:	00:2F:5C:61:21:C4	
SSID: W	рр				AP MAC:	74:A2:E6:71:5A:BE	
Channel: 1	9				Frequency:	5745 MHz	
Security Mode: F	EAP-MSCHAPV2						

3. Go to the Wi-Fi Settings section on the Voice > System tab.

	dit http://10.74.80.10/	/admin/advanced			Ċ		
con conf-no-opl flame-chart D	ashboard 10.89.67.151	owner:zhijin	headset.c	Hub help an	All Hands	My Reviews	Cisco Hoste
CISCO CP-6861-3P	rty Call Control CC Configu	ration U	tility				User Logir
Info Voice Call History Personal Directory							
System SIP Provisioning Regional Pt	one Ext 1 Ext 2	Ext 3 Ext 4	User Att	Console TR-069			
Network Startup Delay:	3				DHCP VLAN Option:		
WI-FI Settings Phone-wifi-on: WI-Fi Profile 1	Yes -				Phone-wifi-type:	WLAN -	
Network Name:	octopus				Security Mode:	PSK -	
Wi-Fi User ID:					Wi-Fi Password:		
WEP Key: Frequency Band:	Auto 👻				Wi-Fi Profile Order:	1 -	
Wi-Fi Profile 2							
Network Name:	wipp				Security Mode:	Auto 👻	
Wi-Fi User ID:	xzhao3				Wi-Fi Password:		
WEP Key:					PSK Passphrase:		
Frequency Band:	Auto 👻				Wi-Fi Profile Order:	2 -	

The Cisco IP Phone 6861 Multiplatform Phone supports 4 Wi-Fi profiles. When you set **Phone-wifi-on** to **Yes** and **Phone-wifi-type** to **WLAN**, the phone tries the 4 profiles in the sequence defined in **Wi-Fi Profile Order** field. For each Wi-Fi profile, **Network Name** refers to the SSID of the AP you want to connect to.

Security Mode provides 7 options: Auto, EAP-Fast, PEAP-GTC, PEAP-MSCHAPV2, PSK, WEP and NONE. Security Mode selection is determined by the authentication method your target AP uses.

• If EAP-FAST, PEAP-MSCHAPv2, or PEAP-GTC is selected then Wi-Fi User ID and Wi-Fi Password are required.

- If PSK is selected to utilize Pre-Shared Key authentication, then a PSK Passphrase must be entered. The PSK Passphrase must be 8-63 ASCII character string.
- If WEP is selected to utilize static WEP (Wired Equivalent Privacy) authentication, then a WEP Key must be entered.
- Only WEP key 1 is supported. The entered key must match the transmit key on the access point side. The WEP Key must be in one of the following formats:
 - 40/64 Bit Key = 5 digits ASCII or 10 digits HEX character string
 - 104/128 Bit Key = 13 digits ASCII or 26 digits HEX character string
- If **None** is selected, then no authentication is required and no encryption will be utilized.
- If Auto is selected, your phone dynamically chooses EAP-FAST, PEAP-MSCHAPv2, or PEAP-GTC as authentication method based on communication with the target AP.

Frequency Band supports 5G, 2.4G, and Auto. Select the desired Frequency Band option:

- Auto = Gives preference to 5 GHz channels, but operates on both 5 GHz and 2.4 GHz channels
- **2.4 GHz** = Operates on 2.4 GHz channels only
- **5 GHz** = Operates on 5 GHz channels only

Once the phone connects to the target AP, the connection info would be displayed on phone's web portal as the following picture shows. Click the Info > Status to view the connection information.

cisco CP-6861-3P	CC Config	uration Utility	
Info Voice Call History Personal Directory			
Status Debug Info Download Status Network St	atistics		
System Information			
Host Name:	SEP002F5C6121C2	Domain:	cisco.com
Company logo Primary NTP Server:		Secondary NTP Server:	
Active Interface:	Wireless	Wireless MAC:	00:2F:5C:61:21:C4
SSID:	wipp	AP MAC:	74:A2:E6:71:5A:BE
Channel:	149	Frequency:	5745 MHz
Security Mode:	PEAP-MSCHAPV2		

Notes:

- Any change to the currently connected Wi-Fi profile would cause the phone to disconnect with the current AP, warm reboot, then connect to current AP with the changed parameters.
- If you have a wired network deployed on your site, connect your phone to the wired network first. After configuring Wi-Fi profiles on the phone web page, you can force the phone to connect to the configured profile by disconnecting the wired network.
- All the Wi-Fi profiles are saved on the phone. The phone can recover the previous Wi-Fi connection after a
 power cycle.

Wireless LAN Profiles (on Phone Screen)

To configure the Wi-Fi profiles on the phone screen, navigate to Network configuration > Wi-Fi configuration > Wi-Fi profile.

On the Wi-Fi configuration menu, choose On for Wi-Fi and WLAN for Wi-Fi type.



The following picture shows the pre-saved profiles and the connected AP blizzard with PSK method.



• Create a new profile

In the **Wi-Fi profile** page, select an empty profile and choose **Edit** from the **Option** menu. Enter all the necessary information in the **Edit profile** page and press **Save**.

• Edit an existing profile

In the **Wi-Fi profile** page, select an existing profile and choose **Edit** from the **Option** menu. Modify the settings in the **Edit profile** page and press **Save**.



• Modify the order for a profile

Your phone supports 4 Wi-Fi profiles. The phone continuously tries all the pre-saved profiles when Wi-Fi connection is lost until it connects with an AP. The trying order is from profile 1 to profile 4. To change the order of a profile, select the profile and chose **Move up** or **Move down** from the **Option** menu.

	Wi-F	i profile	
Edit		Move down	
Delete			
Move up			
Option	Select		Back

• Delete a profile

To delete a profile, select the profile and choose **Delete** from the **Option** menu. Press **OK** to confirm.

• Scan available AP

In **Wi-Fi profile** page, choose **Scan** to search for the available access points. You can choose a wireless network from the scanned result to configure or connect to it.

	Wi-F	i profile	
1 D-Link_Oct PSK	topus		(în 🖬
2 wipp 802.1x			√ ╤ ≞
Option	Scan	Connect	Cancel

Once the **Scan** softkey is pressed, the phone starts scanning and shows animation window as below picture shows.



After a few seconds, the phone shows a list of scan result. You can see all the nearby APs using the outer ring of the navigation cluster. To edit an AP, press **Select** to edit it in the **Setup Wi-Fi** page.

		Connec	t to Wi-Fi	
2	D-Link_Oo PSK	ctopus		? ₽
3	internet None			((1-
		Scan	Select	Cancel

In the **Setup Wi-Fi** page, the scanned SSID, security mode, and frequency are displayed. You can enter the credential information, e.g. Passphrase, userid, WEP ...

	Setu	p Wi-Fi	
Security mode			PSK >
Network name			cisco
Passphrase			
Cancel	Save	Connect	

Once you complete the AP information, you can save the settings as a profile or connect the phone to the AP. When you saved the AP as a profile, you can connect the phone to the saved profile later.

You can save up to 4 profiles to the phone. If all the profiles have AP information configured, the phone pops out an alert message and prompts you to choose replacing a certain profile.



Automatically connect to a previously connected AP

When using WLAN type, the phone always tries to recover connection with the last connected AP. In case that the phone is powered off or the AP is shut down, the phone tries to reconnect with the last connected AP first, and will try the other WLAN profiles when fails. The sequence that the phone tries to connect is from profile 1 to profile 4.

Wireless LAN with WPS (on Phone Screen)

The phone supports connecting to a wireless network with WPS. WPS enables the phone to connect to an AP without inputting detailed AP parameters. The WPS connection process is only available on the phone screen menu. There are two ways to transfer secure data with the desired AP: PBC (press button mode) and PIN(pin code mode).

• Set phone to work in WPS type Go to **Network configuration** > **Wi-Fi configuration**. Set **Wi-Fi type** to **WPS** using the selection button and press **Set**. Then **Push button configuration** and **PIN configuration** are displayed.



• PBC mode

Select **Push button configuration** and follow the onscreen instructions. Press the WPS key on the AP and press **Continue** on the phone. The phone starts negotiating with the AP. The process lasts about 2 minutes. The connection status will display on the phone screen.



• PIN mode

Select **PIN configuration**. A one-time PIN number displays on the phone screen. Enter the PIN number to the AP web page. The phone starts negotiating with the AP. The process lasts about 2 minutes. The connection status will display on the phone screen.

Enter the PIN number: [12345678] on the other device.)
	Back

• Automatically recover connection to a previously connected AP Once the phone talks successfully with the AP via WPS, it can always connect to that AP with learnt info if phone keeps working in WPS type. If Wi-Fi type is changed, the phone cannot recover connection to that WPS AP. You have to reconnect the phone in WPS type manually.

WLAN Connection Troubleshooting

When you encounter a Wi-Fi problem, we suggest that you check the connected AP status, the AP configuration, the Wi-Fi signal strength, and the Wi-Fi messages on the phone. If no issue is detected on the AP and Wi-Fi environment, turn Wi-Fi off and then turn it on again on the phone screen. This could help to recover the Wi-Fi connection. If the problem is still not resolved, report PRT on the phone screen menu or on the phone web page.

You can get the information needed for troubleshooting the WLAN issues by the following means:

- View Wi-Fi status and message on the phone screen
- Capture packets
- Report PRT on the phone or on the phone web page

View Wi-Fi Status and Messages

You can view the Wi-Fi connection status and Wi-Fi messages on the phone screen. When the phone is connected to a wireless network, the Wi-Fi signal strength is displayed on the top-right corner of the phone home screen.

13:29	Xin Z	Xin Zhao	
∽ 5935			
New call	Redial	DND	Contacts

You can see the SSID of the connected AP on the Network configuration menu.

Network config	uration
Ethernet configuration	>
Wi-Fi configuration	wipp
IP mode	Dual mode >
Select	Back

On the Wi-Fi configuration menu and its submenus, you can view more details of the connected wireless network.

- Wi-Fi type: Shows the Wi-Fi connection type
- Wi-Fi profile: Contains the connected or saved Wi-Fi profiles
- Wi-Fi status: Shows the connected SSID, the Wi-Fi signal strength, and the MAC address of the AP

To view Wi-Fi messages, go to Applications > Status > Wi-Fi messages.

Wi-Fi messages display the real-time status of Wi-Fi connection. You can use these messages to monitor and troubleshoot Wi-Fi connection issues.

- Details: Extends the selected message to see the full message
- Clear: Clears all the messages
- Back: Returns to the upper level menu



Wi-Fi Message References

The following table describes the Wi-Fi messages and gives suggestions on what to do when you get the messages.

Event	Wi-Fi messages examples on LCD	Event detail and suggested user actions
Connected to an AP	Connected to AP, MAC 00:11:22:33:44:55:66 on channel 36	Shows the AP and the channel that the phone is connected to.
Disconnected from AP	Disconnected: reason=3, locally=0,conn_fail=1,callactive=1	The phone is disconnected from the AP. Action: Check the AP and the reason for further debug.
Connection failed	Connection failed	The phone failed to connect with AP. Action: Check if Wi-Fi configuration is correct.
Signal strength is low	Wi-Fi signal strength is weaker than - 75dBm for more than 12 seconds	Wi-Fi RSSI value is < -75dBm for 12 seconds. Action: Check and make sure Wi-Fi signal and environment are good enough.
Firmware memory is low	Wi-Fi firmware memory is low, free/total is xxx/xxx	 Wi-Fi firmware memory is low for some reasons. When free memory is less than 50K, it will report this event. Then if the free memory reduces 10k every time, it will report again. When the free memory is less than 25K, the phone reloads Wi-Fi driver. Action: This is a warning message. Let the user know that the firmware memory is low.
AP beacon lost	Cannot receive AP signal (BEACON frames), Wi-Fi network may disconnect	The phone can't receive AP's beacon, Wi-Fi will disconnect. Action: Check the AP and the environment.
Auth/Assoc not response	Cannot receive AP response for AUTH or ASSOC. Wi-Fi network may disconnect	The phone can't receive response for Wi-Fi authentication or association request, Wi-Fi may disconnect. Action: Check the AP and the environment
TX failure, RX undecrypt, channel utilization	TX failure:RX undecrypt:Channel utilization is %d:%d:%d in 2 minutes	The phone gets TX failure, RX undecryption and channel utilization (when the channel utilization is higher than 60%, counter it, if > 100 which is about 10s if beacon is 100ms) in 2 minutes. Action: Check and make sure Wi-Fi environment is good enough
WPS fail	WPS connection failed.	WPS connection failed. Action: Check if the user configures WPS in the correct way (entering the code within 2 minutes)

Event	Wi-Fi messages examples on LCD	Event detail and suggested user actions
		and no other people are configuring WPS at the same time. If the user connects using PIN mode, make sure that the PIN code is correct.

Capture a Screenshot of the Phone Display

You can capture the current display of the phone.

1. Use your web browser to visit <u>http://<phone_IP_address>/admin/screendump.bmp</u>.

Example: http://10.79.3.89/admin/screendump.bmp

- 2. Enter the administrator user name and password when prompted.
- 3. Capture and save the display using your screenshot tool.
- 4. To capture another display, switch to the desired menu on the phone and refresh the display in your web browser.

Capture Packets

You can capture the packets sent to and from the phone on the phone's administration web page.

- 1. Navigate to Info > Debug Info.
- 2. In the Problem Reports section, click Start Packet Capture.

Info Voice Call History Personal Directory	
Status Debug Info Download Status Network Statistics	
Console Logs	
Debug Message 1: messages	Debug Message 2:
Debug Message 3:	Debug Message 4:
Debug Message 5:	Debug Message 6:
Debug Message 7:	Debug Message 8:
Problem Reports	
Report Problem: Generate PRT	Prt File 1: prt-20190324-141057-002F5C6121C2.tar.gz
Prt File 2:	Packet Capture: Start Packet Capture
Capture File:	

3. Click **Submit** on the prompt.



4. When finished, click Stop Packet Capture to stop capturing:

2.tar.gz
2

The captured file is displayed on phone webpage, you can download the file.

			J		
Info	Voice	Call History Personal Directory			
Status	Debug Info	Download Status Network Stat	istics		
Console I	Logs				
		Debug Message 1:	messages	Debug Message 2:	
		Debug Message 3:		Debug Message 4:	
		Debug Message 5:		Debug Message 6:	
		Debug Message 7:		Debug Message 8:	
Problem I	Reports				
		Report Problem:	Generate PRT	Prt File 1:	prt-20190324-141057-002F5C6121C2.tar.gz
		Prt File 2:		Packet Capture:	Start Packet Capture
		Capture File:	pkt-20190403-011835-002F5C6121C2.pcap		

Report PRT on the Phone

You can use the Problem Reporting Tool (PRT) to collect and send phone logs, and to report problems to your administrator.

- 1. Press Applications.
- 2. Select Status > Report problem.
- 3. Enter the date that you experienced the problem in the **Date of problem** field. The current date appears in this field by default.
- 4. Enter the time that you experienced the problem in the **Time of problem** field. The current time appears in this field by default.
- 5. Select Problem description.

Report problem		
Date of problem	04/03	
Time of problem	1:44 AM	
Problem description	Please select >	
Submit	Back	

6. Select a description from the displayed list.



7. Press Submit.

The phone starts generating the PRT file. It takes a few seconds for the phone to collect the diagnostic information.



When the PRT file is generated, the phone sends the PRT file to the remote log server which is deployed by SP.

8. In case that phone wifi connection fails, so 6861 phone not able to post PRT to remote server. Please user turn off then on Wi-Fi on LCD. After phone recover the connection, please user proceed with report problem steps.

	Wi-Fi configurati	ion
Wi-Fi		On
Wi-Fi type		WLAN >
Wi-Fi profile		>
	Set	Back
	Wi-Fi configura	tion
Wi-Fi		On
Wi-Fi type		WLAN >
Wi-Fi profile		>

9. By accessing phone webpage, the PRT files are displayed and downloadable. Totally two PRT files could be saved on phone. They survive the power cycle.

Info Voice Call History Personal Directory	
Status Debug Info Download Status Network Statistics	
Console Logs	
Debug Message 1: messages	Debug Message 2: messages.0
Debug Message 3: messages.1	Debug Message 4: messages.2
Debug Message 5:	Debug Message 6:
Debug Message 7:	Debug Message 8:
Problem Reports	
Report Problem: Generate PRT	Prt File 1: prt-20190403-014542-002F5C6121C2.tar.gz
Prt File 2: prt-20190324-141057-002F5C6121C2.tar.gz	Packet Capture: Start Packet Capture
Capture File: pkt-20190403-011835-002F5C6121C2.pcap	

Additional Documentation

- Cisco IP Phone 6800 Multiplatform Phones Firmware Data Sheet
- Cisco IP Phone 6800 Series Multiplatform Phones Administration Guide
- Cisco IP Phone 6800 Series Multiplatform Phones User Guide
- Cisco IP Phone 6800 Series Multiplatform Phones Release Notes for Firmware Release 11.2.4
- Cisco Autonomous Access Point Documentation
 <u>http://www.cisco.com/c/en/us/td/docs/wireless/access_point/12-4-25d-JA/Configuration/guide/cg_12_4_25d_JA.html</u>

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
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- Consult the dealer or an experienced radio/TV technician for help.

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